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P.O. Box 10395			DESIR, PIERRE LOUIS	
Chicago, IL 60610				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/082,797

Applicant(s)

SAWADA ET AL.

Examiner

PIERRE-LOUIS DESIR

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 22-37, 39-42, 47-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-893)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 22-37, 39-42, 47-48 have been considered but are moot in view of the new ground(s) of rejection.

Below is a brief analysis of Applicant's argument received on 10/01/2007 along with the new ground of rejection.

Applicant's argument regarding claims 43-46 are now moot since claims 43-46 have been withdrawn through the election of claims 2—37, 39-42, 47-48 without reverse.

Regarding Independent claim 42, Applicant argues that Kojima is silent about the second registration control.

To this argument, Examiner presents the below new ground of rejection.

1) Japanese Patent Laid-Open No. 7-30962, Masafumi Akiyama (Akiyama), cited by Applicant.

Akiyama discloses in paragraph 8 a position registration method, for when a plurality of terminals A move together with a terminal B, registering that the terminals A and terminal B correspond in a database, when terminals A and terminal B move in to a new position registration area carrying out position registration only for terminal B in the database, if a terminal A and terminal B do not move together canceling the correspondence to terminal B, and registering a new position registration area, is characterized in that "position registration areas for canceling correspondence" for terminals A and terminal B are stored in advance in one or a plurality of databases and terminals A, if terminal B reaches a new position registration area the fact that a new position registration area has been reached is notified to the database, then in the

database, together with carrying out position registration for the terminal B, when the position registration area is "a position registration area for canceling correspondence" for terminal A, the correspondence between terminal A and terminal B is cancelled and terminal A is made to correspond to the position registration area and registered.

As can be seen from above, a first registration is made when terminal A moves together with terminal B. And if terminal A and terminal B do not move together, a cancel message is received (i.e., disabled message) to cancel the prior registration, and terminal A is made to correspond to the position area and registered.

Regarding claims 22-30 and 37, Applicant discloses that claim 22 calls for a transportation location finder configured to identify a communication area...**based on movement information obtained from a traffic control...**" As such, argues applicants, the switching control station 7 of Kojima updates the position information based on a registration request from the mobile station, not based on movement information obtained from a traffic control.

Examiner respectfully disagrees.

In the specification, the functionality of "traffic control" is disclosed as an entity that notifies the server of the movement information when detecting movement of the object (paragraph 13), and that generates movement information on the object identified by the object identifying information; and transmitting generated movement information to the server (paragraphs 20-21).

Kojima discloses that the switching station acquires position information of the mobile station, which moves together with a mobile space, is acquired through the base stations (see col.

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2, lines 8-10). Thus, the switching control station 7 of Kojima updates the position information based on information obtained from the base stations. As such, Kojima reads on the limitation.

Examiner wants to point out that claims 47-48, drawn to location monitoring, classified in class 455, subclass 456.2, and has separate utilities comparing to the other claims, i.e., claims 22-37, 39-42.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 42 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 42 contains the following language: “a second registration control responsive to the identification signal to **disable the first registration control**.”

The language “disable the first registration control” was not described in the specification at the time the application was filed. And, as such, that language constitutes new matter.

Note: Since no descriptive language regarding the disabling of the first registration control was found in the specification. That language will be interpreted as understood by examiner. And, applicant is referred to the appropriate rejection below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 22-30, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima in view of Tuohino, U.S. Patent No. 5577264.

Regarding claim 22, Kojima discloses a location management apparatus functionally located in a mobile communication network, the location management apparatus maintaining a location of a mobile station within a mobile communication network for wirelessly communicating with the mobile station (see abstract), comprising: a communication control configured to communicate with the mobile station using the mobile communication network, and receive from the mobile station an identification of a transportation on which the mobile station is carried (i.e., the position registration method for a cellular mobile communication system may be constructed such that an identification number unique to the mobile space is transmitted over the position recognition channel in the mobile space, and the mobile station which receives the identification number transmits the identification number to the base stations over a control channel to perform a position registration operation into the switching control station) (see col. 2, lines 24-34); a location information storage in which the location of the mobile station is identifiable with reference to the identification of the transportation notified by the mobile station (see fig. 5, col. 4, lines 13-30); a transportation location finder configured to identify a communication area where the transportation is situated, based on movement

information obtained from a traffic control that manages an operation of a transportation system including the transportation on which the mobile station is carried (i.e., the switching control station 7 has a function of updating, when the mobile space moves in the real space and performs a position registration operation, also the position information of the mobile station from the identification number of the mobile space, in which the mobile station is present, acquired through the base station) (see col. 4, lines 40-45, and col. 5, lines 3-12).

--- In the specification, the functionality of "traffic control" is disclosed as an entity that notifies the server of the movement information when detecting movement of the object (paragraph 13), and that generates movement information on the object identified by the object identifying information; and transmitting generated movement information to the server (paragraphs 20-21).

Kojima discloses that the switching station acquires position information of the mobile station, which moves together with a mobile space, is acquired through the base stations (see col. 2, lines 8-10). Thus, the switching control station 7 of Kojima updates the position information based on information obtained from the base stations. As such, Kojima reads on the limitation.

Although Kojima discloses an apparatus as described, Kojima does not specifically disclose an apparatus comprising a paging control configured to, when a call for the mobile station comes, access the location information storage so as to find the communication area where the transportation is situated, determined by the transportation location finder and cause a paging signal transmitted within the communication area.

However, Tuohino discloses an apparatus comprising Tuohino a paging control configured to, when a call for the mobile station comes, access the location information storage

so as to find the communication area where the transportation is situated, determined by the transportation location finder and cause a paging signal transmitted within the communication area (i.e., in the call set-up, a two-stage interrogation is conducted: first, the identifier of the subsystem is obtained as the location data of the mobile station; second, the current location of the subsystem where the call will be routed to is obtained by means of the identifier of the subsystem) (see abstract, and col. 5, lines 38-62).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings as described by Kojima with the teachings of Tuohino to arrive at the claimed invention. A motivation for doing so would have been to reduce the signaling load in a cellular radio network (see col. 2, lines 9-13).

Regarding claim 23, Kojima discloses an apparatus (see claim 22 rejection) wherein the communication area is a paging area (see col. 2, lines 3-22).

Regarding claim 24, Kojima discloses an apparatus as described above (see claim 22 rejection).

Although Kojima discloses an apparatus wherein when the mobile station is in the mobile space, the registration position of the mobile station is updated depending upon updating of the position registration of the mobile space (i.e., identification of a transportation on which the mobile station is carried) (see abstract), Kojima does not specifically disclose an apparatus wherein the location information storage is updated by a registration request from the mobile station which identifies either a communication area which the mobile station enters or a transportation on which the mobile station is carried.

However, Tuohino discloses an apparatus wherein an apparatus wherein the location information storage is updated by a registration request from the mobile station, which identifies either a communication area, which the mobile station enters, or a transportation on which the mobile station is carried (see abstract and col. 4, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described by Kojima with the teachings as described by Tuohino to arrive at the claimed invention. A motivation for doing so would have been to provide an accurate up-to-date location information database.

Regarding claim 25, Kojima discloses an apparatus (see claim 22 rejection) wherein the transportation location finder determines the communication area where the transportation is situated, using a geographical location of the transportation contained in the movement information (i.e., when the mobile space 9 moves into the service area 2 in the real space, although it becomes impossible to receive the control channel 15, the mobile station 27 does not perform a position registration operation but reads out the system information of the destination of the movement from the position recognition channel 25 and starts use of a new control channel 13) (see col. 6, lines 16-31).

Regarding claim 26, Kojima discloses an apparatus as described above (see claim 22 rejection).

Although Kojima discloses an apparatus as described, Kojima does not specifically disclose an apparatus wherein the transportation location finder is activated to find the communication area where the transportation is situated when a communication when a call is received for the mobile station being carried on the transportation.

However, Tuohino discloses an apparatus wherein the transportation location finder is activated to find the communication area where the transportation is situated when a communication when a call is received for the mobile station being carried on the transportation (i.e., a call to a mobile station registered in the mobile subsystem is routed as follows: the location data of the mobile station stored in the cellular radio network is interrogated, the location data being the identifier of the mobile subsystem, the location data which corresponds to the subsystem identifier and is stored in the cellular radio network is interrogated, the call is routed to the subsystem and further to the mobile station by means of the location data of the subsystem) (see abstract, and col. 2, lines 55-67).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings as described by Kojima with the teachings of Tuohino to arrive at the claimed invention. A motivation for doing so would have been to reduce the signaling load in a cellular radio network (see col. 2, lines 9-13).

Regarding claim 27, Kojima discloses an apparatus (see claim 22 rejection) wherein the location information storage and the transportation location finder are located on different servers functionally connected to each other (see fig. 5, col. 4, lines 14-30).

Regarding claim 28, Kojima discloses an apparatus (see claim 22 rejection) wherein the location information storage comprises a first table in which the locations of the mobile stations are identified with reference to the transportation on which some of the mobile stations are being carried and communication areas where the other of the mobile stations are situated, and a second table in which locations of the transportation are identified with reference to

communication areas where the transportations are situated (see fig. 5, col. 4, lines 14-30, and lines 59-62. Also refer to Tuohino col. 5, lines 1-17).

Regarding claim 29, Kojima discloses an apparatus (see claim 28 rejection) wherein the second table is updated by an update request from the transportation location finder receiving the movement information of the transportation (see col. 4, lines 40-45. Also refer to Tuohino col. 5, lines 1-17).

Regarding claim 30, Kojima discloses an apparatus as described above (see claim 22 rejection).

Although Kojima discloses an apparatus as described, Kojima does not specifically disclose an apparatus further comprising a receiver that receives travel information from the mobile station, which transmits the travel information in response to the paging signal initiated by the location management apparatus.

However, Tuohino discloses an apparatus further comprising a receiver that receives travel information from the mobile station, which transmits the travel information in response to the paging signal initiated by the location management apparatus (i.e., when a MS moves to a mobile system MCPN (located e.g. on a train), the MS effects location updating to the MCPN. The MCPN, in turn, transmits the information on the location of the MS to the fixed cellular radio network, which stores the corresponding logical location area, i.e. identification data of the MCPN, as the location data of the MS, wherein a call to a mobile station registered in the mobile subsystem is routed as follows: the location data of the mobile station stored in the cellular radio network is interrogated, the location data being the identifier of the mobile subsystem, the location data which corresponds to the subsystem identifier and is stored in the cellular radio

network is interrogated, the call is routed to the subsystem and further to the mobile station by means of the location data of the subsystem) (see abstract, col. 2, lines 55-67, and col. 5, lines 11-17).

Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings as described by Kojima with the teachings of Tuohino to arrive at the claimed invention. A motivation for doing so would have been to reduce the signaling load in a cellular radio network (see col. 2, lines 9-13).

Regarding claim 37, Kojima discloses an apparatus wherein a location of a mobile station stored in the location information storage is updated by a registration request from a transportation which identifies the transportation and the mobile station (i.e., when the mobile station is in the mobile space, the registration position of the mobile station is updated depending upon updating of the position registration of the mobile space) (see abstract).

5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima and Tuohino, further in view of Drury, U.S. Patent No. 6707421.

Regarding claim 31, the combination discloses an apparatus as described above (see claim 25 rejection).

Although the combination discloses an apparatus wherein travel information comprises a geographical location of the mobile station, and a traveling direction thereof (see Kojima abstract, col. 4, col. 6, lines 25-31, and lines 33-39), the combination does not specifically disclose an apparatus wherein the travel information comprises a traveling speed.

However, Drury discloses an apparatus wherein a positioning system for generating position data related to a geographic location of the system, and a wireless communication device (see abstract), wherein location related data, including speed and orientation data is sent to the server system (see col. 25, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described to arrive at the claimed invention. A motivation for doing so would have been to provide accurate and updated information as related to the location of the mobile station.

6. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima and Tuohino, further in view of Jones, U.S. Patent No. 6363323.

The combination discloses an apparatus as described above (see claim 25 rejection).

Although the combination discloses an apparatus as described, the combination does not specifically disclose an apparatus wherein the travel information comprises a traveling speed; and further comprising transportation travel information storage accessible by the transportation location finder, which maintains geographical locations of the transportations (as related to claim 32); wherein the transportation travel information storage stores travel statuses of the transportations, wherein the travel status comprises a delay in schedule (as related to claim 33); wherein the travel status of the transportations are receivable by the location management apparatus (as related to claim 34).

However, Jones discloses a vehicle tracking system includes a sensor (e.g., a GPS sensor) and a vehicle control unit (VCU) attached to a vehicle. The sensor determines the vehicle's

location based on positioning signals received from a plurality of satellites. The VCU compares the vehicle's location to a predefined schedule. The predefined schedule includes a plurality of entries where each entry corresponds to a location along the vehicle's route of travel. Furthermore, each entry includes a location value indicating the location that corresponds with the entry and a time value indicating when the vehicle should be at the location. The VCU determines whether the vehicle is on schedule or off schedule (i.e., delay) by comparing the current location of the vehicle (as determined by the sensor) and the amount of time elapsed since the start of the route with the entries in the predefined schedule. If the vehicle is off schedule, then the VCU transmits a status message to a remote location indicating how much the vehicle is off schedule (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described to arrive at the claimed invention. A motivation for doing so would have been that accurate and updated information as related to location is provided.

7. Claims 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima, Tuohino, and Jones, further in view of Lehtikoinen et al. (Lehtikoinen), Pub. No. US 20020077060.

The combination discloses an apparatus as described (see claim 32 rejection).

Although the combination discloses an apparatus as described, the combination does not specifically disclose an apparatus further comprising a schedule information storage that stores travel schedules of the transportations, wherein based on information stored in the transportation

travel information storage and the schedule information storage, the location management apparatus determines a future location of a transportation; and wherein the travel schedules of the transportations are receivable by the location management apparatus.

However, Lehtikoinen discloses an apparatus wherein one or more beacons disposed in a train station may receive continuous updates on train schedule information such as arrivals, departures and track changes. A traveler entering the train station (and the operating ranges of the train station beacons), will be able to obtain the stored train schedule information by simply selecting the services access key 420 on the user's mobile station. This will cause a service request to be wirelessly communicated to a beacon disposed in relative close proximity to the mobile station, whereupon available location-based information will be transmitted to the requesting mobile station for conveyance to the user, e.g., as a text or audio message.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described to arrive at the claimed invention. A motivation for doing so would have been that accurate and updated information as related to location is provided.

8. Claims 39, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima in view of Japanese Patent Laid-Open No. 7-30962, Masafumi Akiyama (Akiyama), cited by Applicant.

Regarding claim 42, Kojima discloses a mobile station registrable with a wireless communication network that comprises at least one communication area (see abstract), comprising: a location signal receiver configured to receive from the wireless communication

network a location signal indicative of an identification of an communication area in which the mobile station is situated and receive an identification signal from a transportation which comprises an identification of the transportation (i.e., in order to attain the object described above, there is provided a position registration method for a cellular mobile communications system which includes a plurality of base stations which individually take charge of a plurality of service areas in a real space, a mobile station, and a switching control station for acquiring position information of the mobile station through the base stations, comprising the steps of registering an existing position of a mobile space such as an electric train or a bus in the real space into the switching control station through the base stations using a control channel, transmitting, in the mobile space, a position recognition channel which is a radio channel for confirming whether or not the mobile station is present in the mobile space, discriminating whether or not the position recognition channel is received by the mobile station in the mobile space thereby to discriminate whether or not the mobile station is in the mobile space, and updating, when the mobile station is in the mobile space, the registration position of the mobile station depending upon updating of the position registration of the mobile space) (see abstract, col. 2, lines 3-23); a first registration control responsive, absence the identification signal, to the location signal to transmit to the wireless communication network a first registration request which comprises the identification of the communication area, whereby the mobile station becomes locatable with respect to the communication area (i.e., the position registration method for a cellular mobile communications system may be constructed such that, if, when the mobile station is placed into a reception disabled state from a reception enabled state of the position recognition channel, a position registration operation is performed through the base stations over

a control channel in a condition wherein no identification number of the mobile space is available, then the switching control station determines that the mobile station has gone out of the mobile space. Alternatively, the position registration method for a cellular communication system may be constructed such that, if the identification number of the mobile space being transmitted over the position recognition channel cannot be received any more, the mobile station performs a position registration operation over the control channel between the mobile station and the pertaining base station even if the mobile station is present in the mobile space) (see col. 2, lines 3-51); and a second registration control responsive to the identification signal and transmit a second registration request which comprises the identification of the transportation, whereby the mobile station becomes locatable with respect to the transportation (i.e., the position registration method for a cellular mobile communication system may be constructed such that an identification number unique to the mobile space is transmitted over the position recognition channel in the mobile space, and the mobile station which receives the identification number transmits the identification number to the base stations over a control channel to perform a position registration operation into the switching control station, and then the switching control station collates the identification number to discriminate that the mobile station has entered the mobile space which has the pertaining identification number) (see col. 2, lines 3-51).

Kojima does disclose that the switching control station 7 collates the service area in which the mobile station is present with the service area in which the mobile space 9 is present, and if the service areas coincide with each other, then the switching control station 7 determines

that the mobile station has entered the mobile space 9 and transmits a position registration operation stopping signal to the mobile station through the base station. The existing position of the mobile station is thereafter updated depending upon the position data of the mobile space 9.

If the mobile station goes out of the mobile space 9 into the real space, then since the identification number of the mobile space 9 which has been received till now by reception of the position recognition channel 25 cannot be received any more, the mobile station performs a position registration operation to the base station. At this time, the mobile station can receive no mobile space identification number and does not have a mobile space identification number to be transmitted to the base station by the position registration operation. The switching control station 7 determines that there is no mobile space in which the mobile station exists and issues an instruction to start position registration, and then updates the position data independently for the mobile station (see col. 5, lines 3-40).

As can be seen from above, Kojima discloses that two types of updates are associated with the different type of registration. One registration takes place when the mobile station is on the mobile space 9 and another registration takes place when the mobile station goes out of the mobile space.

It is worth noted that although Kojima discloses that the switching station transmits a position registration operation stopping signal to the mobile station through the base station, Kojima does not specifically disclose that the stopping signal would stop the current or previous (i.e., first) registration. In that case, Kojima does not specifically disclose disabling of the first registration control.

However, Akiyama discloses a position registration method, for when a plurality of terminals A move together with a terminal B, registering that the terminals A and terminal B correspond in a database, when terminals A and terminal B move in to a new position registration area carrying out position registration only for terminal B in the database, if a terminal A and terminal B do not move together canceling the correspondence to terminal B, and registering a new position registration area, is characterized in that "position registration areas for canceling correspondence" for terminals A and terminal B are stored in advance in one or a plurality of databases and terminals A, if terminal B reaches a new position registration area the fact that a new position registration area has been reached is notified to the database, then in the database, together with carrying out position registration for the terminal B, when the position registration area is "a position registration area for canceling correspondence" for terminal A, the correspondence between terminal A and terminal B is cancelled and terminal A is made to correspond to the position registration area and registered (see paragraph 8).

As can be seen from above, a first registration is made when terminal A moves together with terminal B. And if terminal A and terminal B do not move together, a cancel message is received (i.e., disabled message) wherein terminal A is made to correspond to the position area and registered.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described by Kojima with the teachings of Akiyama to arrive at the claimed invention. A motivation for doing so would have been to provide a system that carries out representatives position registration and cancellation that can efficiently perform

position registration even at times other when a mobile space arrives at its final station (see paragraph 7).

Regarding claim 39, Kojima discloses a mobile station (see claim 42 rejection) further comprising a positioning device that determines a travel status of the mobile station, which comprises a geographical location of the mobile station (see abstract, col. 4, lines 40-45, and col. 5, lines 3-12).

Regarding claim 41, Kojima discloses a mobile station (see claim 39 rejection) further comprising a transmitter that transmits the travel status (i.e., position information) in response to a paging signal (see abstract, and col. 4, lines 33-45).

9. Claims 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima and Akiyama, further in view of Drury.

Kojima discloses mobile station as described above (see claim 39 rejection).

Also, Kojima discloses a provider wherein a mobile station is present in a train or a bus and moves together with the mobile space (see abstract). Thus, as the train or the bus moves, the mobile station also moves. And the direction and speed of the vehicle (train or bus) would also be the direction or speed of the mobile station.

Although the combination discloses a mobile station as described, Kojima does not specifically disclose a mobile station wherein the travel status further comprises a traveling speed of the mobile station.

However, Drury discloses an apparatus wherein a positioning system for generating position data related to a geographic location of the system, and a wireless communication

device (see abstract), wherein location related data, including speed and orientation data is sent to the server system (see col. 25, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings as described to arrive at the claimed invention. A motivation for doing so would have been to provide accurate and updated information as related to the location of the mobile station.

10. Claims 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over of Lehtikoinen et al. (Lehtikoinen), Pub. No. US 20020077060, in view of Kojima.

Regarding claim 47, Lehtikoinen discloses a location information provider comprising a query receiver configured to receive an inquiry from a user asking a location of a mobile station (see paragraph 34); a memory that stores time schedules of transportations (see paragraph 34); a location estimator configured to determine a future location (i.e., schedule information such as arrival) of the mobile station by referring to the time schedules stored in the memory (see paragraph 34); and a transmitter configured to transmit to the user a response which comprises the determined future location of the mobile station (see paragraph 34)--- (i.e., one or more beacons disposed in a train station may receive continuous updates on train schedule information such as arrivals, departures and track changes. A traveler entering the train station (and the operating ranges of the train station beacons), will be able to obtain the stored train schedule information by simply selecting the services access key 420 on the user's mobile station. This will cause a service request to be wirelessly communicated to a beacon disposed in relative close proximity to the mobile station, whereupon available location-based information will be

transmitted to the requesting mobile station for conveyance to the user, e.g., as a text or audio message).

Although Lehtikoinen discloses a provider as described, Lehtikoinen does not specifically disclose a provider comprising a location queryer responsive to the inquiry to find if the mobile station is situated on a transportation and locating the mobile station based on that information.

However, Kojima discloses a provider wherein a mobile station is present in a train or a bus and moves together with the mobile space (see abstract). Thus, as the train or the bus moves, the mobile station also moves. And the direction and speed of the vehicle (train or bus) would also be the direction or speed of the mobile station. Kojima discloses a provider comprising an indication as to whether or not a mobile station is situated on a transportation (see fig. 5, col. 4, lines 13-30), and wherein the position of the mobile station is updated depending upon the position data of the mobile space 9 (i.e., see col. 5, lines 3-40).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings as disclosed by Lehtikoinen with the teachings disclosed by Kojima to arrive at the claimed invention. A motivation for doing accurately estimate the current path of the mobile station.

Regarding claim 48, Lehtikoinen discloses a provider as described above (see claim 47 rejection).

Although Lehtikoinen discloses a provider as described, Lehtikoinen does not specifically disclose a provider wherein the location queryer also finds, if the mobile station is situated on a transportation, a current location of the transportation and an identification of the transportation,

and the response comprises the current location of the transportation and the identification of the transportation.

However, Kojima discloses a provider wherein a position registration method for a cellular mobile communication system may be constructed such that an identification number unique to the mobile space is transmitted over the position recognition channel in the mobile space, and the mobile station which receives the identification number transmits the identification number to the base stations over a control channel to perform a position registration operation into the switching control station (see col. 2, lines 24-34). The switching control station 7 has a function of updating, when the mobile space moves in the real space and performs a position registration operation, also the position information of the mobile station from the identification number of the mobile space, in which the mobile station is present, acquired through the base station (see col. 4, lines 40-45, and col. 5, lines 3-12) ---Also refer to col. 5, lines 3-40.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings as disclosed by Lehtikoinen with the teachings disclosed by Kojima to arrive at the claimed invention. A motivation for doing accurately estimate the current path of the mobile station.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PIERRE-LOUIS DESIR whose telephone number is (571)272-7799. The examiner can normally be reached on Monday-Friday 9:00AM- 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571)272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pierre-Louis Desir/
Examiner, Art Unit 2617

/DWAYNE D. BOST/
Supervisory Patent Examiner,
Art Unit 2617